p=0.04 at D10; 2.3±0.2 vs. 1.3±0.8, p<0.0001 at D15 and 1.9±0.2 vs. 1.3±0.3; p=0.015 at D21). Areas of 99mTc-fucoidan uptake co-localized with endothelial expression of P- and E-selectins. There was a close relationship between uptake of the tracer and myocardial content in CD45+/CD11b+ cells.

Conclusions: 99mTc-fucoidan allows detecting early steps of endothelial activation associated with EAM, and its uptake is correlated with myocardial content in inflammatory cells. Further study is required to determine whether it may allow monitoring chronic disease and/or therapy efficacy.

0057

Influence of the model used to combine data acquired during multiple heart beats on temporal resolution of cardiac Cine MRI: is high temporal resolution achievable with children and young adults?

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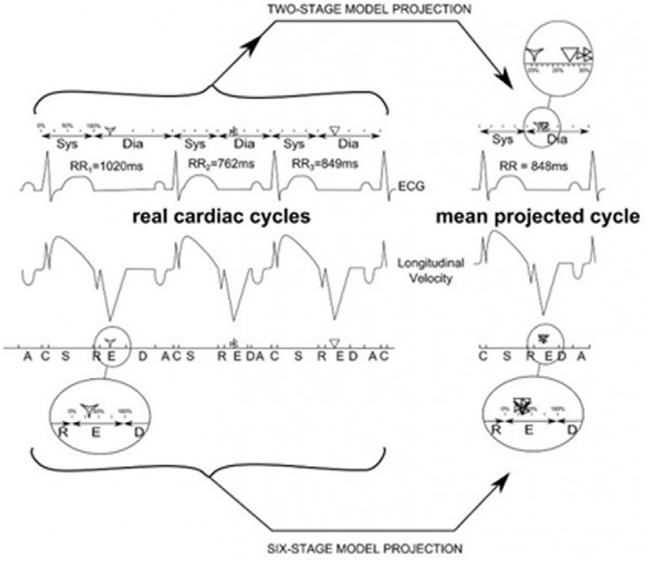
Purpose: Cardiac Cine-MRI combines data acquired in different cycles of variable lengths to reconstruct images. This study aims at assessing the temporal misalignment induced by different methods for combining k-space lines.

Methods: The durations of the six cardiac stages of 306 cardiac cycles were assessed with Tissue-Doppler Imaging in a population of 7 children and young adults. Different models from the literature (Chung and Feinstein), and adaptive two-stage and six-stage models were used to combine these cardiac cycles. Temporal shift between the modelized and the real positions within the cycles were recorded.

Results: The averages of the 95% confidence limits of temporal misalignments caused by two-stage models were between 20 and 30ms but during early diastole they reached 40-50ms. Chung's model behaved slightly better than Feinstein's (26ms vs 31ms, p<0.001). The adaptive models significantly reduced time misalignments (22ms vs 26ms, p<0.001 for the 2-stage model and 18ms vs 22ms, p<0.001 for the six-stage model).

Conclusion: There is a theoretical limitation to high temporal resolution cardiac acquisitions due to time misalignments during cine reconstruction, at least within a pediatric population. Simple personalized adaptive cardiac models may reduce this limitation.



Abstract 0057 – Figure: Time missallignments when combining cardiac cycles

0297

Risk stratification using CMR delayed enhancement in LMNA mutation carriers

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Background: Laminopathy is a frequent cause of familial dilated cardiomyopathy (DCM) associated with peripheral myopathy. The clinical cardiac manifestations are usually atrial fibrillation, atrio-ventricular blocks with a DCM. Myocardial delayed enhancement (DE) with cardiac magnetic resonance imaging (CMR) is known to be associated with a worse rhythmic prognosis in DCM.

Aim: Determine if myocardial DE can be used as a risk stratification tool for cardiac prognosis in asymptomatic LMNA mutation carriers.

Material and methods: Cohort study of 15 LMNA mutation carriers with left ventricular ejection fraction (LVEF) > 50% followed between 2009 et 2013 (10 DE+, 5 DE-). Primary endpoint was rythmic events uprise and secondary endpoint was LVEF evolution.

Results: Regarding patients with DE since 2009, 60% required pacemaker or implantable cardioverter-defibrillator (ICD) implantation for atrio-ventricular blocks, ventricular arrhythmias or left ventricular dysfunction whereas no patient with a normal CMR did (p = 0,027). In 2009, LVEF was similar in the two groups (LVEF = 68% DE+ group vs 65% DE- group, p = 0,18), whereas in 2013, DE group has a lower LVEF (LVEF = 53% DE+ group vs 65% DE- group, p = 0,009).

Conclusion: Myocardial DE seems to be an early cardiac marker for PM or ICD implantation risk and left ventricular dysfunction in LMNA mutation carriers with normal LVEF.

0181

Interest of atrial function assessment by tissue Doppler imaging in coronary patients

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Background: Atrial function is an integral part of cardiac function which is often neglected. The presence of coronary artery disease may impair atrial function. This study investigated if atrial mechanical dysfunction was present in coronary patients by tissue Doppler echocardiography (TDI).

Materials and methods: Prospective study in 60 patients hospitalized for coronary heart disease that we compared to 40 healthy subjects matched for age and sex. With pulsed TDI we measured the peak velocity of atrial contraction (Va) at the free wall of the RA (RA-Va), the LA (LA-Va) and in the inter-atrial septum (Va-IAS). We studied the electromechanical delay of the onset, the peak and the end of atrial contraction by measuring respectively the time between the beginning of the P wave and the onset, the peak and the end of atrial contraction.

Results: The mean age was 53.5±10.9 years [26;76] comparable to the average age of witnesses. 90% of the population was male. Va was similar in the free wall of the RA and LA (p=0.1) and less on the IAS (p<0.001) respectively 14.9±3.5cm/s, 14.1±3.8cm/s and 10.9±2.6cm/s. In coronary patients, there are a significant decrease in the rate of atrial contraction in the three atrial sites (Va-LA:11.5±4cm/s Vs 14.1±3.8cm / s; Va-RA:12,4±3.7cm/s Vs 14.9±3.5cm/s; Va-AIG: 8.8 ± 2.7 cm/s Vs 10.9± 2.6cm/s, p<0.001). Similarly, there's a significant lengthening (p<0.001) in the electromechanical delay affecting the onset (RA:67.3±17.9ms Vs 50±11.9ms; IAS:73.1±18.3ms Vs 59.3±15.9ms; LA: 81.3±17.7ms Vs 55.4±13.1ms), the peak (RA: 127.2±23ms Vs 110.3±27ms; IAS: 130.2±18,3ms Vs 120±17.4 ms; LA:138.1±17.3 ms Vs 126.8±17.4 ms) and the end (RA:196.8±25.7ms Vs 175.6±25.3ms; IAS: 195±22.2ms Vs 179.6±16.4ms; LA:195.5±22.8ms Vs 177.6±23ms) of the atrial contraction. We found that the Va-LA is independent of the presence or absence of a trans-wall myocardial infarction.

▶

Conclusion: The atrial contractile dysfunction on echocardiography can help to establish the positive diagnosis of myocardial ischemia and to assess its severity. Pulsed TDI can make a better understanding of the impact of coronary heart disease on the sequence of mechanical atrial contraction.

0182

Double-chambered right ventricle with intact interventricular septum in adults

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Introduction: The double-chambered right ventricle (DCRV) is a rare congenital heart disease in which anomalous muscle bundles divide the right ventricle into two cavities, causing variable degrees of obstruction. Typically, DCRV is diagnosed at childhood or adolescence, and most DCRV patients have associated congenital anomalies, such as ventricular septal defect, pulmonary stenosis, and subaortic stenosis. The aim of this study is to determinate the clinical presentation, the echocardiographic patterns and the outcome of DCRV with intact ventricular septum in 4 adults.

▶

Materials and results: They were 3 men and one woman. The mean age was 29 years [17;43]. The clinical manifestations were a class II of NYHA dyspnea in 3 patients and right congestive heart failure was observed in one patient. A systolic ejection murmur was heard on the left parasternal border in all cases. Electrocardiogram revealed atrial fibrillation in 2 cases, incomplete right bundle block in 3 patients and right ventricular hypertrophy in all patients. Transthoracic echocardiography established the diagnosis in all cases. It objectified right cavities enlargement in 2 patients and right ventricular hypertrophy in all patients. Moderate tricuspid regurgitation was found in one patient and it was severe in one other patient. The pressure gradient in the right ventricle was evaluated at 72, 80, 80 and 75 mmHg. DCRV was an isolated lesion in all patients. Cardiac catheterization was performed in all patients; it confirmed echocardiographic findings in them. The 4 patients were referred to surgery. Surgical inspection confirmed echocardiographic and catheterisation data in all subjects. They underwent a resection of the obstructing muscle bundles. The postoperative course was uneventful in all patients with no death.

Conclusion: DCRV should be suspected in adults when there is a RV outflow tract obstruction with unusual symptoms. Echocardiography is considered as a useful method for the diagnosis of isolated DCRV. Cardiac catheterisation is performed in difficult cases. DCRV should in general be treated surgically, because the obstruction is progressive and ends in heart failure. Operative results and long-term outcomes are usually excellent.